MONITOR

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Betriebsanleitung / Operating Manual

151E

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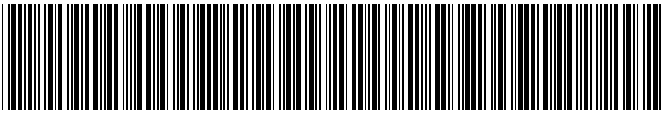

A26361-K819-Z100-1-5E19

Deutsch

English

Français

Español

Italiano

Svenska

Nederlands

151E
Farbbildschirm
Color monitor
Moniteur couleur
Monitor de color
Monitor a colori
Färgskärm
Kleurenbeeldscherm

Betriebsanleitung
Operating Manual

Ausgabe Januar 2002
January 2002 edition

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Introduction

Your new 151E colour monitor possesses a whole range of useful features and functions, e. g.:

- 15" (38 cm) high-resolution CRT (0.28 mm dot pitch)
- automatic scanning of all horizontal frequencies from 30 to 54 kHz and all refresh rates (vertical frequencies) from 50 to 120 Hz
- digital screen controller with microprocessor for storing 19 different display modes
- VESA-DDC compatibility
- power management for reducing power consumption by up to 95% when the computer system is not in use
- compliance with the latest ergonomic standards (ISO 9241-3)
- compliance with the recommendations in accordance with MPR II

This Operating Manual contains important information you require to start up and run your monitor. The monitor interacts closely with the graphics card (screen controller) of your computer. The monitor processes the data supplied to it by the screen controller. The screen controller/the associated driver software is responsible for setting the modes (resolution and refresh rate).

Target group

You don't need to be an "expert" to perform the operations described here. Do, however, read the chapter "Important notes" in the Operating Manual of the computer and in this Operating Manual.

In the event of any problems occurring, please contact your sales outlet or our Help Desk.

Further information

Details of how you set the resolution and refresh rate are provided in the documentation on your screen controller/the associated driver software.

Notational conventions

The meanings of the symbols and fonts used in this manual are as follows:

Pay particular attention to text marked with this symbol. Failure to observe this warning endangers your life, destroys the device, or may lead to loss of data.

Supplementary information, remarks, and tips follow this symbol.

► Text which follows this symbol describes activities that must be performed in the order shown.

"Quotation marks" indicate names of chapters or terms.

Important notes

In this chapter you will find information regarding safety which is essential to take note of with your monitor.

Safety

This device complies with the relevant safety regulations for data processing equipment, including electronic office machines for use in an office environment. If you have any questions, contact your sales outlet or our Help Desk.

- If the device is brought into the installation site from a cold environment, condensation can form. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.
- During installation and before operating the device, please observe the instructions on environmental conditions in the chapter entitled "Technical data" as well as the instructions in the chapter "Installing an ergonomic video workstation".
- To ensure adequate ventilation the monitor may only be operated with the monitor foot installed.
- The colour monitor must not be exposed to strong magnetic fields (e. g. caused by magnetic paper clip holders or loudspeakers). Strong magnetic fields could result in a permanent blotchy image.
- The monitor is automatically degaussed when switched on. This results in a magnetic field around the metal edge of the picture tube, which may damage the data on data carriers nearby. Therefore, never keep magnetic data carriers near the monitor.
- The device automatically sets itself to the correct voltage within the range from 100 V to 240 V. Ensure that the local mains voltage lies within these limits.
- The device must be installed in such a way that the user has good access to the appliance socket.
- The ON/OFF switch does not disconnect the device from the mains voltage. To disconnect the electricity supply completely, remove the power plug from the socket.
- Lay all cables so that nobody can stand on them or trip over them. When attaching the device, observe the relevant notes in the chapter "Connecting the monitor".
- No data transmission cable should be connected or disconnected during a thunderstorm.
- Please ensure that no objects (e. g. necklaces, paperclips etc.) or liquids can get into the interior of the device (this may cause an electrical shock or short circuit).
- In emergencies (e. g. damaged casing, elements or cables, penetration of liquids or foreign matter), switch off the unit, disconnect the power plug and contact your sales outlet or our Help Desk.
- Only qualified technicians should repair the device. Unauthorised opening and incorrect repair may greatly endanger the user (electric shock, fire risk).
- Tampering with the device, in particular adjusting the high voltage or installing a different type of CRT tube, may result in a large amount of X-ray radiation being emitted. Devices modified in this way no longer comply with their licence and may not be used.
- You may set only those resolutions and refresh rates specified in the "Technical data" chapter. Otherwise you may damage your monitor. If you are in any doubt, contact your sales outlet or our Help Desk.
- Keep this Operating Manual together with your device. If you pass on the device to third parties, you should include these.

Cleaning note

- Always pull out the power plug before you clean the monitor.
- Do not clean any interior parts yourself, leave this job to a service technician.
- Do not use any cleaning agents that contain abrasives or may corrode plastic.
- Ensure that no liquid will run into the system.
- Ensure that the ventilation areas of the monitor are free.
- When cleaning the surface of the screen, always use a soft, slightly damp cloth in order to avoid scratching the glass.

Wipe the monitor housing with a dry cloth. If the monitor is particularly dirty, use a cloth which has been moistened in mild domestic detergent and then carefully wrung out.

Transport notes

- When transporting the monitor ensure that it is not exposed to strong magnetic fields.
- Transport the monitor with care and only in its original packaging or another corresponding packaging fit to protect it against knocks and jolts.
- Above all, never drop the monitor. If the CRT is damaged, there is a risk of implosion!

Manufacturer's notes

Energy Star

The Fujitsu Siemens Computers colour monitor 151E is designed to conserve electricity by dropping to less than 10 W when it goes into standby/suspend mode and to less than 7 W when it goes into OFF mode. With this new power management the 151E qualifies for the U.S. Environmental Protection Agency's (EPA) Energy Star Computers award.

The EPA estimates that computer equipment uses 5% percent of all business electricity and it is growing rapidly. If all desktop computers and peripherals enter a low-power mode when not in use, the overall savings in electricity could amount to $ 2 thousand million annually. These savings could also prevent the emission of 20 million tons of carbon dioxide into the atmosphere - the equivalent of 5 million automobiles.

As an Energy Star Partner, Fujitsu Siemens Computers GmbH has determined that this product meets the Energy Star guidelines for energy efficiency.

CE certificate

CE The shipped version of this device complies with the requirements of the EEC directives 89/336/EEC "Electromagnetic compatibility" and 73/23/EEC "Low voltage directive".

Note on X-ray radiation

This device complies with the German X-ray regulations (Röntgenverordnung - RöV). The local dosage emitted is less than 1 µSv/h (micro-Sievert per hour) at a distance of 0.1m.

FCC Class B Compliance Statement

The following statement applies to the products covered in this manual, unless otherwise specified

herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Regulations. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Fujitsu Siemens Computers GmbH is not responsible for any radio or television interference caused by unauthorised modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu Siemens Computers GmbH The correction of interference caused by such unauthorised modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC rules.

Important note on power cable

To guarantee safe operation, use the cable supplied. Use the following guidelines if it is necessary to replace the original cable set.

- The female/male receptacles of the cord set must meet CEE-22 requirements.
- The cable has to be HAR-certified or VDE-certified. The mark HAR or VDE will appear on the outer sheath or on the insulation of one of the inner conductors.
- For devices which are mounted on a desk or table, type SVT or SJT cable sets may be used. For devices which sit on the floor, only SJT type cable sets may be used.
- The cable set must be selected according to the current rating for your device.

Power cable for devices distributed in the US and Canada

In the United States and Canada the cord set must also be UL-listed and CSA-labelled. The voltage rating should be min. 250 volts a.c.

Please consult the following table for the selection criteria for power cables used in the United States and Canada.

Cable type	Size of conductors in cable	Maximum current rating of the device
SJT	18 AWG 16 AWG 14 AWG	10 Amps 12 Amps 12 Amps
SVT	18 AWG 17 AWG	10 Amps 12 Amps

Disposal and recycling

This device has been manufactured to the highest possible degree from materials which can be recycled or disposed of in a manner that is not environmentally damaging.

The device may be taken back after use to be recycled, provided that it is returned in a condition that is the result of normal use. Any components not reclaimed will be disposed of in an environmentally acceptable manner.

If you have any questions on disposal, please contact your local office, our Help Desk, or:
Fujitsu Siemens Computers GmbH
Recyclingcenter
D-33106 Paderborn
Tel.: ++ 49 5251 - 818 010/ Fax: ++ 49 5251 - 818 015

Checking the contents of the consignment

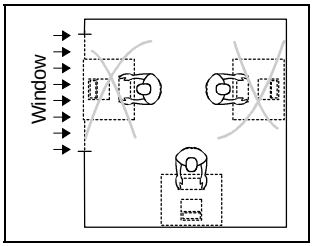
- ► Unpack all the individual parts.
- ► Remove any plastic caps from the plugs for the cables in the consignment.
- ► Check the delivery for damage incurred during transportation.
- ► Check whether the delivery agrees with the details in the delivery note.
  The complete shipment comprises:
  - one monitor with data cable
  - one power cable
  - one monitor base
  - one warranty card
  - this Operating Manual

Should you discover that the delivery does not correspond to the delivery note, notify your local sales outlet immediately.

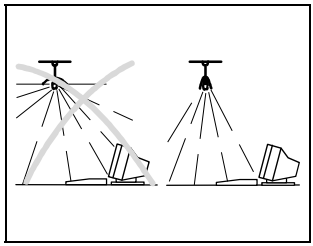
i It is recommended not to throw away the original packing material. Keep it for future transportation.

Installing an ergonomic video workstation

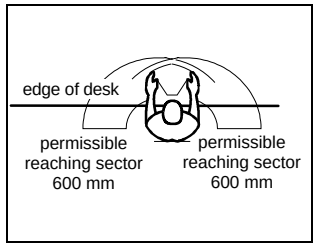
Before you set up your equipment you should select a suitable position for working at the monitor. Please observe the following advises when installing a video workstation.



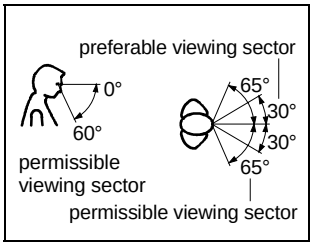
Avoid direct and reflected glare.



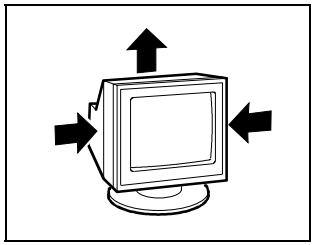
Avoid glare from electric lighting.



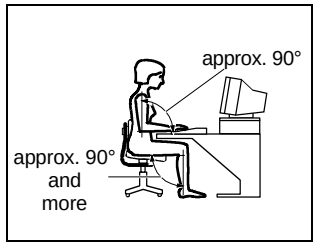
Position the keyboard where it is easiest to reach.



Position the monitor for optimum viewing. The viewing distance to the monitor should be approximately 50 cm.



Keep ventilated areas clear.



Remember to maintain correct posture.

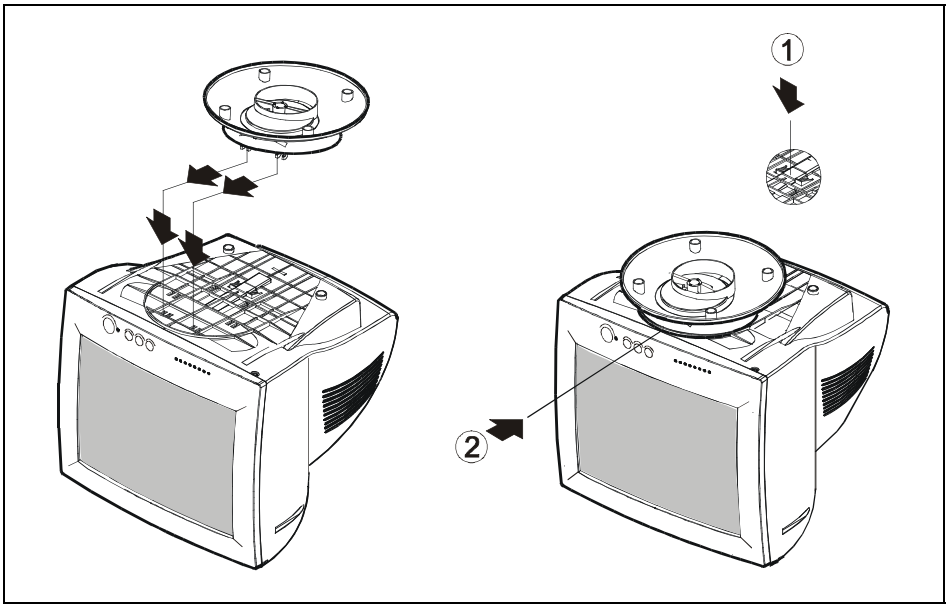
Assembling and removing the monitor base

Your monitor is shipped with a base which allows you to rotate and tilt the monitor to the best position.

Assembling the monitor base

Attach the base as follows:

► Turn the monitor upside down.



► Fit the base so that its hooks slot into the recesses on the monitor.

► Slide the base forward in the direction of the arrow until it clicks into position.

► Right the monitor onto its base.

Removing the monitor base

To remove the monitor base (for example, to transport it), perform the following steps:

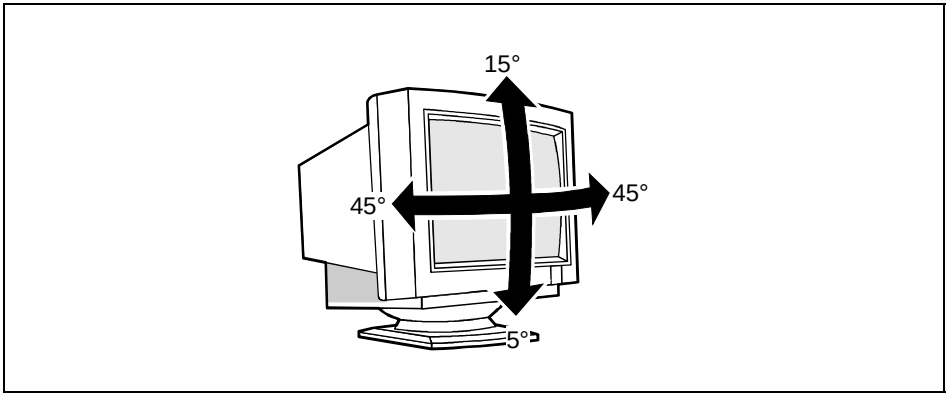
► Turn the monitor upside down.

► Push down on the snap lock (1).

► Slide the monitor base backwards (2).

To ensure adequate ventilation the monitor may only be operated with the monitor foot installed.

Tilting and turning area



Tilting and turning area: The specified tilting area refers to the zero position of the monitor foot marked with an arrow.

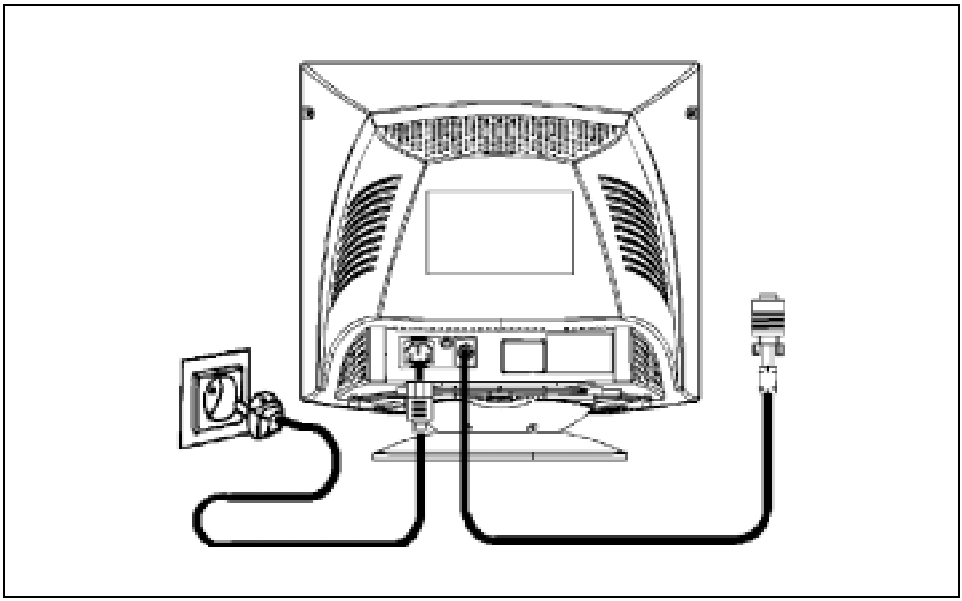
Connecting the monitor

Information on the computer connections is contained in the operating manual for your computer.

Please note the safety information provided in the chapter "Important notes" in the Operating Manual of the PC.

Do not cover the ventilation openings of the monitor.

If you are assembling monitors beside each other, there must be a minimum distance of 30 cm between monitors of the same constructional type, to avoid image distortion. With different monitors, the distance must be increased, if necessary.



► Be sure that the monitor and the computer are switched off.

The computer power plug must be pulled!

The data cable is permanently attached to the monitor. It has a 15-pin D-SUB connector for the monitor port of the computer.

► Connect the 15-pin connector of the data cable to the (active) monitor port on the computer and secure the plug-in connection by tightening the safety screws.

i If your computer has two monitor ports ("onboard" screen controller and separate graphics card), the monitor port for the separate graphics card is usually active.

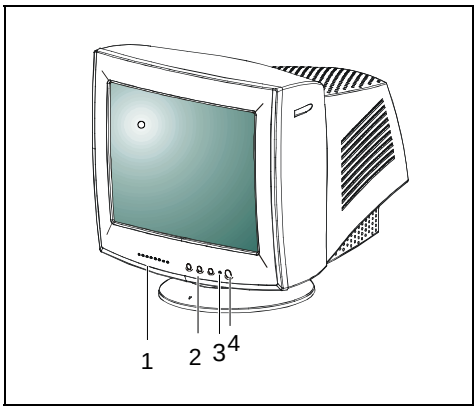
► Plug the power cable supplied into the power connector of the monitor.

► Plug the power connector of the monitor into a properly grounded mains outlet.

► Plug the power connector of the computer into a properly grounded mains outlet.

i When you start working with your monitor for the first time you should install the appropriate graphics drivers for your application software. Details of how to do this are provided in the documentation on your graphics card/the associated driver software.

Operation of the monitor



1 = Function indicators
2 = Buttons for screen setting
3 = Power indicator
4 = ON/OFF switch

Switching the monitor on

► Press the ON/OFF switch (4).

The power indicator (3) lights up green when the computer is turned on.

i If your computer has a power management function (energy-saving mode), you should read the "Notes on power management" of the monitor in this chapter.

Switching the monitor off

► Press the ON/OFF switch (4).

The power indicator (3) is dark.

Notes on power management

If your computer has a VESA DPMS (Video Electronics Standard Association, Display Power Management Signaling) power management function (energy-saving mode), your monitor will fully support this function. The monitor has a four-stage power management system.

Stage	ON	Standby mode	Suspend mode	OFF mode
Power indicator	glows green	glows amber	glows amber	glows amber
Function	Monitor operating normally	Monitor is dark	Monitor is dark	Monitor is dark
Power consumption	Normal < 65 W	Reduced to < 10 W	Reduced to < 10 W	Reduced to < 7 W

If your computer detects inactivity (no input) it sends an appropriate signal to the monitor to reduce the power consumption.

If there is still no input, power consumption is further reduced (OFF mode). Once an input is made at the computer the screen contents are redrawn and full power is restored.

The length of the individual stages is determined by the power management system of the computer. For detailed information on how energy-saving mode operates refer to the Operating Manual or Technical Manual of your computer.

i

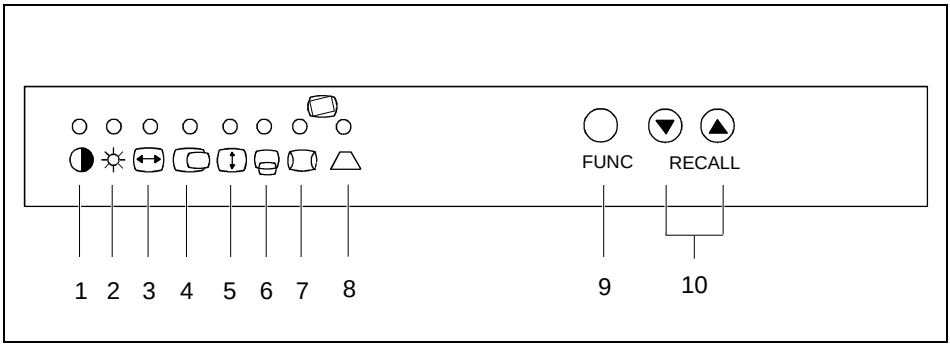
The service life of your monitor will be extended if the OFF mode is switched to after 30 minutes at the earliest (setting in screen saver or in your computer's BIOS setup).

When the monitor is switched to OFF mode by the power management system a power consumption of up to 7 W is maintained to feed the circuit for redrawing the screen contents.

To cut off power consumption totally, press the ON/OFF switch on the front of the monitor.

Changing the monitor settings

With the buttons on the control panel, you can change the monitor settings.



1 = Contrast
2 = Brightness
3 = Horizontal size
4 = Horizontal position
5 = Vertical size
6 = Vertical position
7 = Pincushion correction/Picture rotation
8 = Trapezium correction/Picture rotation
9 = FUNC button
10 = Setting buttons ▼ ▲/RECALL

To make a setting, perform the following steps:

► Use the FUNC (function selection) button to select the symbol for the setting you want to change.

The function indicator above the symbol lights up. As long as the indicator remains on, the setting buttons ▼ ▲ for the selected function are active.

► Use the ▼ or ▲ button to make the desired setting.

The function indicator flashes quickly when the upper or lower border of the setting area is reached.

If no button is pressed for a short period, the function indicator goes off and the current setting is saved.

Adjusting the brightness and contrast

i You will increase the life of your screen if you adjust the contrast and brightness to medium.

◑	Contrast between the foreground and background: ▲ = Increasing the contrast ▼ = Decreasing the contrast
☼	Brightness of the background: ▲ = Increasing the brightness ▼ = Decreasing the brightness

Adjusting size and position

	Horizontal size: ▲ = Increase size ▼ = Decrease size
	Horizontal position: ▲ = Shifting the picture to the right ▼ = Shifting the picture to the left
	Vertical size: ▲ = Increase size ▼ = Decrease size
	Vertical position: ▲ = Shifting the picture up ▼ = Shifting the picture down

Correcting distortion

Pincushion distortion is when the sides of the screen display are bent inward or outward. Trapezoid distortion is when the length of the top and bottom of the screen display differ from each other.

	Pincushion correction: ▲ = Bend edges inward ▼ = Bend edges outward
	Trapezium correction: ▲ = Make picture narrow at top, wider at bottom ▼ = Make picture wider at top, narrower at bottom
	Picture rotation: ▲ = Rotating the picture in a clockwise direction ▼ = Rotating the picture in a counter-clockwise direction

Activating the factory settings (RECALL)

Factory settings are available for all settings including brightness and contrast in the preset operating modes (see table in the chapter "Technical data".)

► Press the ▲ and ▼ buttons at the same time.

Notes on ergonomic colour adjustment

If you select colours for the display in your application programmes, take note of the information below.

The primary colours blue and red on a dark background do not produce the minimum required contrast of 3:1 and are therefore not suitable for continuous text and data entry.

When using several colours for characters and background and giving the primary colours full modulation, you can obtain very suitable colour combinations (see the following table):

Background	Characters							
	black	white	purple	blue	cyan	green	yellow	red
black		+	+	-	+	+	+	-
white	+		+	+	-	-	-	+
purple	+	+		-	-	-	-	-
blue	-	+	-		+	-	+	-
cyan	+	-	-	+		-	-	-
green	+	-	-	+	-		-	-
yellow	+	-	+	+	-	-		+
red	-	+	-	-	-	-	+	

\+ Colour combination very suitable; light background colours are only suitable for devices which are operated with a refresh rate of at least 75 Hz.

\- Colour combination not suitable because colour locations are too close together, thin characters are not identifiable or rigorous focusing is demanded of the human eye.

Technical data

Dimensions and weight

CRT:	38 cm (15“)
Visible diagonals:	35 cm
Dot pitch:	0.28 mm
Maximal resolution:	1024 x 768 pixels
Dimensions (W x H x D):	360 mm x 362 mm x 387 mm
Weight:	11.5 kg
Accessories:	power cable (1.5 m) monitor base
Storable display modes:	19 (7 of which are preset)

Electrical data

Video:	analogue, positive, 0.7 V_{pp}, 75 Ohm
Synchronisation:	TTL
Horizontal frequency:	30 kHz .... 54 kHz (multi-scanning)
Refresh rate:	50 Hz .... 120 Hz
Maximum pixel rate:	65 MHz
Power supply:	100 V - 240 V ± 10% 60 Hz/50 Hz ± 3 Hz, < 1.5 A
Power consumption (see power management):	< 65 W (ON, Normal mode) < 10 W (Standby mode) < 10 W (Suspend mode) < 7 W (OFF mode)

Environmental conditions

Environment class 3K2, IEC 721	
Rated range of operation:	15 °C .... 35 °C
Humidity:	10 % .... 80 %
Limit range of operation:	0 °C .... 40 °C
Humidity:	10 % .... 80 %

Condensation must be avoided.

VESA-DDC-compatible VGA interface

Your monitor is equipped with a VESA-DDC-compatible VGA interface. VESA-DDC (Video Electronics Standard Association, Display Data Channel) is used as the communications interface between the monitor and the computer. If your computer is equipped with a VESA-DDC-compatible VGA interface, it can automatically read the data for ensuring optimum operation from your monitor and select the appropriate settings.

i

If the monitor 151E is not yet displayed in the list of monitors, you can select one of the following monitors instead:

Fujitsu Siemens C551, 154V or Siemens MCM 153V, MCM 1404, MCM 1405 ND

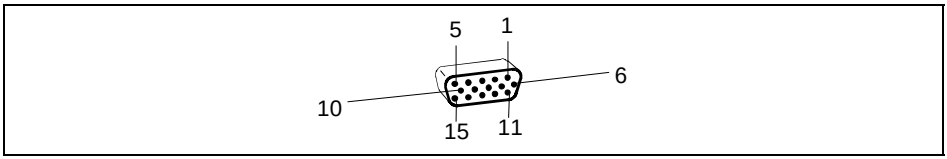
Preset operating modes

i The picture position and size have been set to optimum values at the factory for the operating modes listed above. Depending on the screen controller used, it may be necessary to adjust the display position and size. In this case, you can change and save the settings (see "Changing the monitor settings").

Horizontal frequency	Refresh rate	Screen resolution
31.5 kHz ±1.0 kHz	70 Hz ± 1 Hz	720 x 400
31.5 kHz ±1.0 kHz	60 Hz ± 1 Hz	640 x 480
37.5 kHz ±1.0 kHz	75 Hz ± 1 Hz	640 x 480
43.3 kHz ±1.0 kHz	85 Hz ± 1 Hz	640 x 480
46.8 kHz ±1.0 kHz	75 Hz ± 1 Hz	800 x 600
53.7 kHz ±1.0 kHz	85 Hz ± 1 Hz	800 x 600
48.4 kHz ±1.0 kHz	60 Hz ± 1 Hz	1024 x 768

For ergonomic reasons we recommend a refresh rate of at least 75 Hz and a maximum resolution of 800 x 600 pixels.

Pin assignment D-SUB



Pin	Meaning
1	Video Red
2	Video Green
3	Video Blue
4	Monitor ground
5	DDC Return
6	Red video ground
7	Green video ground
8	Blue video ground

Pin	Meaning
9	not assigned
10	Logic ground
11	Monitor ground
12	DDC data (SDA)
13	H. sync
14	V. sync
15	DDC Clock (SCL)

Error handling

Should an error occur, first check the following points. If the distortion is still not eliminated, the monitor should, if possible, be checked on another computer.

If you are unable to solve the problem, please inform our Help Desk.

The display is too small or not centred

The monitor recognises an undefined mode.

- ► Adjust the picture size, position and edges (see "Operation of the monitor").

Colour displacements

- ► Switch the monitor off and after about 10 minutes on again to degauss the monitor.
- ► Ensure that there are no devices or objects near the monitor which generate magnetic fields (e. g. loudspeakers, plug-in power supply units).

Flickering picture

- ► Set an ergonomic refresh rate (≥ 75 Hz) using the computer software (see documentation for your computer or your graphics card).
- ► Ensure that the monitor is kept at a distance of at least 30 cm from other monitors of the same construction type. With different monitors, the distance must be increased, if necessary.

All function indicators are flashing

The input signal (horizontal frequency and refresh rate) does not correspond to the technical monitor data.

- ► Adjust the video frequency range using the computer software (see documentation for your computer or your graphics card).

All function indicators are lighting

- ► Check whether the data cable for the monitor is correctly attached to the monitor and the monitor port on the computer.
- ► Check whether the monitor connection of the computer used is active.

No display (power indicator does not light)

- ► Check whether the monitor is switched on.
- ► Check whether the power cable on the monitor is connected correctly.
- ► Check whether the computer is switched on.

No display (power indicator lights)

- ► Check whether the computer is switched on.
- ► Check whether the data cable for the monitor is correctly attached to the monitor and the monitor port on the computer.
- ► Check whether the monitor connection of the computer used is active.
- ► Press any key on the computer keyboard – the computer may be in energy saving mode.
- ► Change the brightness and/or the contrast; the monitor may be adjusted to the maximum dark setting.